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Effect of electromagnetic waves of cell-phone on a mouse epilepsy model induced by pentylenetetrazole

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Abstract

Background: Electromagnetic waves of cell-phone as an integral part of life make different biological effects.

Objective: The purpose of this study was to investigate the effect of cell-phone-like waves on a mouse epilepsy model induced by pentylenetetrazole.

Methods: This experimental study was conducted on 75 male mice (weighing 25-30 g) that were divided to 5 groups (n=15). Except for control group, they were exposed to 950 MHz magnetic waves with an antenna power density of 3 or 6 mW/cm^2 and modulation of 100 or 217 KHz for a week. Then, 75mg/Kg of pentylenetetrazole was injected intraperitoneally to all mice. Seizure onset, duration of tonic and tonic-clonic seizures and total seizure duration (from start to finish of the seizure) were measured. Data were analyzed by ANOVA and Tukey test.

Findings: The seizure onset in treatment groups was not significantly different from control group. The duration of tonic seizures was significantly increased in the group which was exposed to 6 mW/cm^2–100 KHz waves ($P<0.01$). The duration of tonic-clonic seizures was significantly increased in the group which was exposed to 6 mW/cm^2-217 KHz waves ($P<0.05$). The total seizures duration was also significantly increased in the groups which were exposed to 6 mW/cm2 and 217 KHz waves ($P<0.01$).

Conclusion: Electromagnetic waves of cell phone may increase duration of seizures. In this process, the effect of wave's power is more than wave's modulation. It is recommended for those prone to seizure to minimize their exposure to electromagnetic waves.

Keyword: Electromagnetic Radiation, Cellular Phone, Seizures, Epilepsy, Pentylenetetrazole

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